

Section II. (Remarks)**Acknowledgment of Allowance of Claim 32**

The allowance of claim 32 at page 15 of the May 20, 2005 Office Action ("Claim 32 is allowed") is acknowledged.

Incorporation of Limitation of Claim 34, Amended as Proposed by the Examiner, in Independent Claims 1, 2, 9 and 29

In the May 20, 2005 Office Action, at paragraph 6 on page 3, the examiner rejected claim 34 under USC 112, first paragraph.

The statement of rejection at the bottom of page 3 directed applicant to "[s]ee previous explanation," in apparent reference to paragraph 1 on page 2 of the Office Action, where the examiner cited such rejection, and stated:

"For clarity, examiner suggests inserting - - at the joint - - after the phrase "non-capillary active" as similarly recited in claim 32."

In view of the examiner's proposal to insert such language in order to overcome the 35 USC 112, first paragraph rejection of claim 34, and the fact that claim 34 was otherwise free of the art, the limitation of claim 34 amended as proposed by the examiner, viz., "wherein the applied sealant composition is non-capillary active at the joint," has been inserted in claim 1, from which claimed 34 depended, to place claim 1 in condition for allowance.

Correspondingly, the same patentably distinguishing limitation, "wherein the applied sealant composition is non-capillary active at the joint," has been inserted in independent claims 2 and 9, to place those claims in condition for allowance.

Finally, claim 29 has been corresponding amended, to recite therein the limitation

"applying to the interface a light-curable sealant composition, and exposing the applied sealant composition to curingly effective light, wherein the applied sealant composition is non-capillary active at the interface" (emphasis added).

As a result of the foregoing amendment of claims, claim 1, and claims 3-8 and 10-28 dependent (directly or indirectly) thereunder, and independent claims 2 and 9, each requiring the limitation "wherein the applied sealant composition is non-capillarily active at the joint," are now in condition for allowance, as is claim 29, corresponding reciting "wherein the applied season composition is non-capillarily active at the interface," and claim 30 depending from claim 29.

Amendment of Claims 7, 9 and 23 to Overcome Rejections under 35 USC §112, Second Paragraph

Concerning the rejection of claim 9 under 35 USC 112, second paragraph for recital of the phrase "hypodermic-type," as alleged to render such claim indefinite, claim 9 has been amended hereinabove to delete the several instances of such phrase from the claim, in the last paragraph thereof.

Although inadvertently not cited by the examiner, such phrase "hypodermic-type" also appeared in claim 7 of the claims as previously on file, and such phrase likewise has been deleted from claim 7 herein by amendment of such claim.

Claim 23 was rejected under 35 USC 112, second paragraph in the May 20, 2005 Office Action, for recitation of the term "neat," as lacking definition in the claim. To obviate this rejection, the term "neat" has been deleted by amendment of claim 23 hereinabove.

With the amendment of claims 7, 9 and 23 to overcome §112, second paragraph, projections, and the amendment of claims 1, 2, 9 and 29 to incorporate therein the limitation of (now-canceled) claim 34 amended as proposed by the examiner to overcome the §112, first paragraph of claim 34, all pending claims 1-33 now comport with the requirements of 35 USC 112.

Amendment of Article Claim 33

Claim 33 has been amended herein to excise the product by process limitation therein, so that same now recites:

33. An ammunition article including a projectile disposed in a casing and presenting a circumferential joint between the projectile and the casing, the joint being sealed by a circumferential film of a light-cured sealant over the joint.

Such amendment is consistent with and supported by the disclosure at page 5, fourth line from the bottom ("a thin circumferential film of the sealant at such joint") and page 7, lines 15-16 ("a uniformly spread sealing film over the joint"); and introduces no new matter (35 USC 132).

Rejection of Claims on Reference Grounds and Traversal Thereof

In the May 20, 2005 Office Action, claims 1-31 and 33 were rejected on reference grounds, including:

- a rejection of claims 1, 2, 4-8, 10-24, 29-31 and 33 under 35 USC § 103 as unpatentable over U.S. Statutory Invention Registration H1350 to Desmond et al. ("Desmond") in view of U.S. Patent Application Publication No. 2004/0069177 to Klein ("Klein"), either alone or with U.S. Patent No. 6,367,386 to Brede et al. ("Brede");
- a rejection of claim 3 as unpatentable under 35 USC § 103 over Desmond in view of Klein in view of U.S. Patent 4,359,370 to De La Mare et al. ("De La Mare");
- a rejection of claim 9 as unpatentable under 35 USC § 103 over Desmond in view of Klein, either alone or with Brede, further in view of U.S. Patent 5,689,084 to Malotky et al. ("Malotky");
- a rejection of claims 16-23 and 25-28 under 35 USC § 103 as unpatentable over Desmond in view of Klein in view of U.S. Patent 6,284,813 to Leppard ("Leppard"); and
- a rejection of claim 26 under 35 USC § 103 as unpatentable over Desmond in view of Klein in view of U.S. Patent 6,017,973 to Tamura et al. ("Tamura").

The foregoing rejections of the claims are traversed and reconsideration of the patentability of claims 1-31 and 33 is requested, in light of the various amendments of the claims made hereinabove, and the ensuing remarks.

Remarks Concerning Patentable Distinction of Claims 1-30 Over the Cited References

As discussed hereinabove, the limitation of now-canceled claim 34, amended as proposed by the examiner in paragraph 1 at page 2 of the May 20, 2005 Office Action, has been incorporated in claims 1, 2, 9 and 29¹.

As a result of the foregoing amendment of claims, claim 1, and claims 3-8 and 10-28 dependent (directly or indirectly) thereunder, and independent claims 2 and 9, each requiring the limitation "wherein the applied sealant composition is non-capillarily active at the joint," are now in condition for allowance, as is claim 29, corresponding reciting "wherein the applied season composition is non-capillarily active at the interface," and claim 30 depending from claim 29.

Thus, all of the claims 1-30 either recite, or require by virtue of dependency from independent claims reciting, the limitation of now-canceled claim 34, amended as proposed by the examiner to resolve the §112, first paragraph issue, and otherwise free of the art.

On such basis, claims 1-30 overcome the various grounds of rejection stated in the May 20, 2005 Office Action, and the examiner therefore is respectfully requested to withdraw such rejections of claims 1-30.

Accordingly, all issues relating to the process claims 1-30 have been resolved.

Patentable Distinction of Article Claims 31 and 33 Over the Cited References

The remaining claims 31 and 33 are patentably distinguished over the art.

Claim 31 recites:

31. An ammunition article including a projectile mounted in a cartridge casing presenting a projectile/casing interface, with the interface sealed by a light-cured sealant composition.

Claim 33 has been rewritten herein to excise the limitation that the ammunition article is manufactured by the method of claim 32, so that claim 33 now recites the ammunition article as follows:

¹ Claim 29 however reciting "interface" instead of "joint" as in independent claims 1, 2 and 9.

33. An ammunition article including a projectile disposed in a casing and presenting a circumferential joint between the projectile and the casing, the joint being sealed by a circumferential film of a light-cured sealant over the joint.

Claims 31 and 33 have been rejected under 35 USC § 103 as unpatentable over Desmond in view of Klein, either alone or with Brede.

Concerning the cited combination of Desmond in view of Klein (optionally with Brede), the motivation for modifying Desmond by Klein is stated at page 3 of the Office Action to be a motivation to seal a propellant charge (“... in order to seal a propellant charge. That’s it. The motivation is to seal a propellant charge.”)(emphasis in original).

Desmond is conceded by the examiner as lacking disclosure of a light-curable sealant (“Desmond does not disclose the sealant being a light-curable sealant and exposing the applied sealant composition to curingly effective light”)(page 5, lines 1-3 of the Office Action).

Klein is stated to teach manufacture of an ammunition article by applying a “UV or ultraviolet light curable sealant composition and exposing the applied composition to curingly effective light... for the purpose of sealing a propellant charge” on the basis of which it is asserted to have been obvious “to modify Desmond to include the sealant technology as taught by Klein in order to seal a joint” (page 5, lines 4-8 of the Office Action).

In positing the rejection, the examiner stated that there “need be no motivation in Desmond whatsoever” (page 2, third line from the bottom, in the May 20, 2005 Office Action) since Desmond “is the base reference.”

Thus, the sole motivation resides in Klein, however Klein does not even teach the use of a sealant for sealing a projectile/casing joint or interface, but instead seals a propellant charge by applying sealant directly to the propellant charge and cross-linking it to a cured mass, before it is inserted into the rear cavity of a projectile, in which position the cured sealant is spatially separated from any contact with the projectile as well as from the projectile/cartridge interface.

If the propellant charge sealing of Klein were imported into Desmond as proposed by the examiner, there would be no sealing of any projectile/casing joint by light-curable sealant in the resulting article, and the

combined teachings would in no way yield or even suggest the ammunition article of applicant's claimed invention.

This is apparent from a rigorous consideration of the Desmond and Klein structures, as taken from drawing figures in the respective references.

Figure 1 of Desmond is reproduced below for ease of reference, showing the ammunition article that is dip coated with a sealant according to the teaching of that reference.

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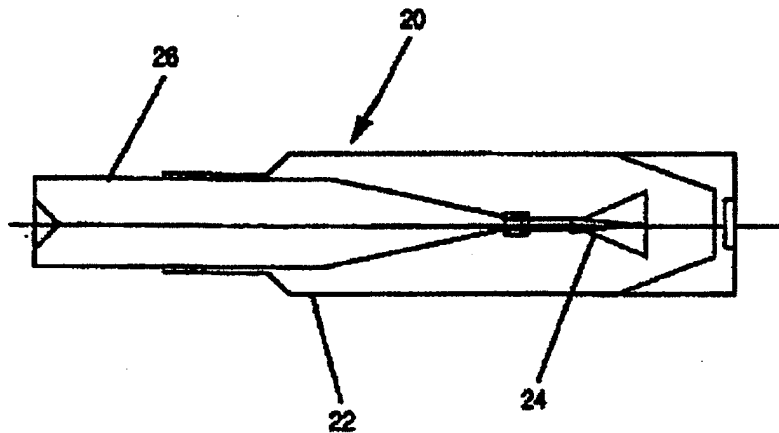


FIG. 1

As shown in Desmond Fig. 1, the ammunition article of Desmond includes a flechette cartridge 20 including a sabot 26 having a flechette end 24 that is enclosed in the cartridge case 22. As disclosed in Desmond, the flechette cartridge is lowered through an integral lid into a sealant dip to coat the cartridge, following which the cartridge is withdrawn through the integral lid, in which a diaphragm acts as a squeegee, to remove excess sealant collected on the cartridge.

In Klein, the ammunition article, as shown in Fig. 5 of that reference, reproduced on the following page for ease of discussion, features a shell casing 12 having a propellant loading orifice 13 in the rear wall thereof.

The casing 12 houses the entire projectile 11, and a propelling charge 27 is in a cartridge 80, with an adhesive mixture 26 deposited over the propellant charge 27 and cross-linked by ultraviolet light exposure.

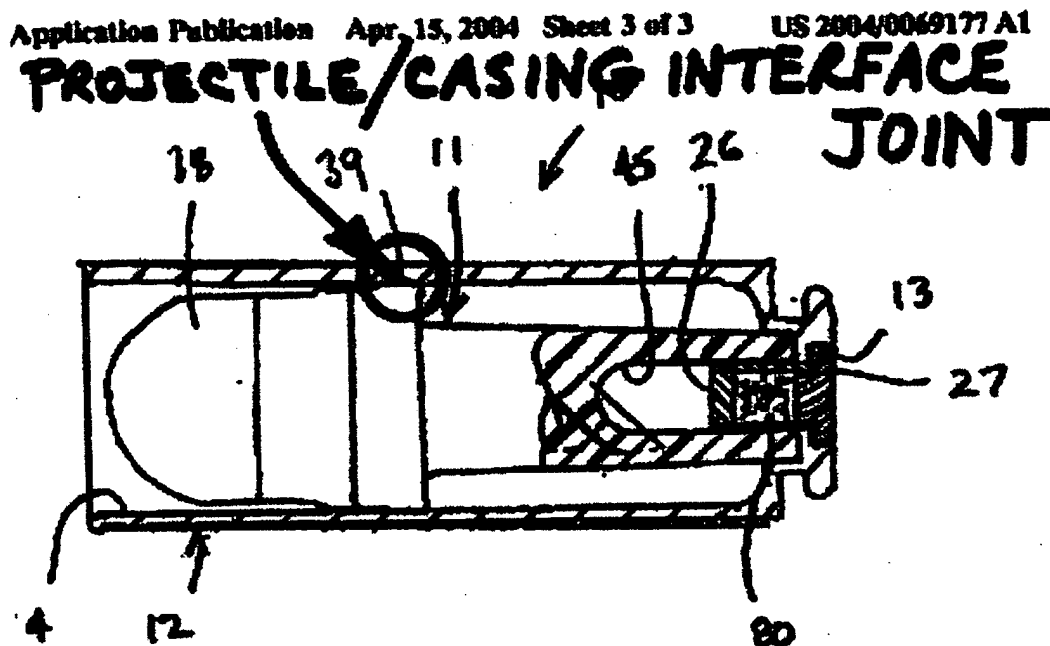


FIG. 5

It as seen from Klein's Fig. 5 above that the adhesive mixture 26 is deposited directly on the propellant charge. Klein discloses that after the adhesive mixture is cross-linked, the cartridge 80 is inserted into and seals the orifice 13 in the end wall of the shell casing 12. Thereafter, the projectile body is inserted into the shell casing, with "the cavity 45 thereof positioned in enclosing relationship about the cartridge 80" (page 2, paragraph [0031]).

There is thus no projectile/cartridge joint or interface that is sealed with the adhesive mixture 26, in the Klein ammunition article. The projectile/cartridge joint or interface has been circled in Fig. 5 above, and labeled "PROJECTILE/CASING INTERFACE JOINT." As clearly shown in this Fig. 5, the collar 39 of the projectile is in bearing contact with the inner surface of the shell casing 12, but such

projectile/cartridge joint has no adhesive mixture whatsoever associated therewith, and the adhesive mixture 26 in fact is remote from, and not in any way in contact with, the projectile/cartridge joint.

Accordingly, Klein, far from motivating any projectile/cartridge joint sealing in the Desmond article, teaches away from any such modification, by its disclosure of a projectile/cartridge joint being unassociated with any adhesive mixture or sealant composition. Brede, the optional further reference, does not in any way cure this deficiency, since Brede fails to teach any light-curing sealant.

Accordingly, a *prima facie* case of obviousness is not present, and the combination of Desmond in view of Klein, optionally in view of Brede, does not in any way teach or suggest applicant's ammunition article as claimed in claim 31 or 33. It therefore is respectfully requested that the rejection of claims 31 and 33 based Desmond in view of Klein, optionally in view of Brede, be withdrawn.

Authorization for Charging of Any Fees Properly Payable in Connection with This Response

Although no fees are submitted to be payable in connection with the filing of this response, authorization hereby is given to charge any amount that may in fact be properly payable herewith, to Deposit Account Number 08-3284 of Intellectual Property/Technology Law.

CONCLUSION

Claims 1-33 as amended and now pending in the application are in form and condition for allowance. Favorable action is requested.

If any remaining issues exist, the Examiner is requested to contact the undersigned attorney at (919) 419-9350.

Respectfully submitted,



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